

**FY 2000 Subsistence Fisheries Project Narrative
Project #42**

Project Title: Population Assessment of Lake Clark Sockeye Salmon

Investigator Organizations: USGS-BRD, NPS, ADFG Gene Conservation Lab, Kijik Corporation

Geographic Area: Bristol Bay

Information Type: Stock Status and Trends

Issue Addressed: Lack of information on population distribution and an inability to identify Lake Clark stocks from among other Bristol Bay sockeye salmon stocks currently hinders accurate assessment of Lake Clark salmon resources for subsistence management purposes. Recent dramatic declines in sockeye salmon returns to Bristol Bay negatively impacted both subsistence and commercial fishers in the region (Anchorage Daily News, Sunday July 12, 1998) such that the governor declared the region an economic disaster area. Local residents have reported declines in sockeye salmon to the Lake Clark Region. For example, once abundant spawning populations no longer return to historic spawning areas (e.g., Tanalian) and once abundant populations appear to be diminishing (e.g. Kijik watershed). Residents of Newhalen, Iliamna, Nondalton and Pt. Alsworth annually harvest an estimated 40,042 (est. 200,210 lbs) sockeye salmon, which comprise up to 75% of their total subsistence harvest.

Study Objectives: The overall goal of this portion of the Lake Clark Sockeye Salmon Project is to identify all major spawning aggregations in the Lake Clark watershed and to determine a Lake Clark sockeye salmon “fingerprint”. This projects objectives are:

1. Determine the location of spawning aggregations through radiotelemetry.
2. Genetically compare the Lake Clark spawning aggregations based on variation at microsatellite loci.

Project Description: Up to 200 sockeye salmon will be implanted with radio tags as they enter Lake Clark. Tagging will occur throughout the run and tagged fish will be tracked to final spawning destinations. Since much (>50%) of the Lake Clark watershed is glacial, the use of radio transmitters will allow identification of all major aggregations regardless of water clarity. Fish will be relocated weekly by boat or air. Spawning will be verified by seining. Current distributions will be compared to historic distributions to assess if a decline in aggregations has occurred. Genetic samples from aggregations will be obtained by collecting small tissue samples (fin clips) from 100 fish (50:50 sex ratio) from each major spawning aggregation. ADFG is currently developing the suite of 14 primers to be used in this study. All major spawning populations will be genetically identified and compared to the complementary regional ADFG Bristol Bay genetic database.

Consultation Completed/Potential for Capacity Building: NPS, USGS-BRD, ADFG, and the University of Montana jointly sponsor this proposal. It has local (Kijik Corporation, Nondalton) and regional (BBRAC) support. Consultations have included representatives of the Lake and Peninsula Borough, the Alaska Department of Fish and Game (Commercial and Sport Fish Divisions), the University of Alaska, and the National Park Service. Local consultations also took place in June 1999 in Nondalton, Newhalen, Iliamna, and Port Alsworth. Local hires will be used within the project.

Deliverables/Products: Maps of all major and most minor spawning aggregations and their habitats will be developed. Annual reports will be prepared and distributed in 2000 and 2001. Annual updates will be presented in the local villages and at regional meetings. Results will be published in peer reviewed scientific journals.

Cost: Funding requested for this project is \$78,000 for full implementation in the year 2000; an estimated \$150,000 will be needed in the year 2001. Important contributions are being made by ADF&G, NPS, and USGS-BRD.

Annual Budget Summary	USGS-BRD	USGS-BRD Local Hire	Total
FY 2000	\$70.0 K	\$8 K	\$78 K
FY 2001	\$135.0 K	\$15 K	\$150 K
Total	\$205.0 K	\$23 K	\$228 K